

Appln No. 09/691,632

Amdt date June 25, 2003

Reply to Office action of March 27, 2003

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A transceiver for transmitting a transmission signal to and receiving a receive signal from an antenna, comprising:

at least one ~~[capacitor]~~ coupling circuit, each ~~[capacitor]~~ coupling circuit comprising a first node and a second node;

51 a transmitter having ~~[an]~~ at least one output to couple [a] the transmission signal to ~~[an]~~ the antenna, each of the at least one transmitter output coupled to one of the first node of ~~[each of]~~ the at least one ~~[capacitor]~~ coupling circuit; and

a receiver having ~~[an]~~ at least one input responsive to [a] the receive signal from the antenna, each of the at least one receiver input coupled to one of the second node of ~~[each of]~~ the at least one ~~[capacitor]~~ coupling circuit[-];

wherein the at least one coupling circuit continuously couples, with a substantially constant impedance, the at least one transmitter output to the at least one receiver input.

2. (Currently Amended) The transceiver of claim 1 wherein the at least one transmitter output is disabled when the at least one receiver input is enabled, and the at least one receiver input is disabled when the at least one transmitter output is enabled.

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3. (Currently Amended) The transceiver of claim 1 wherein the transmitter [~~includes~~] comprises a power amplifier [~~having~~] comprising the transmitter output, and the receiver comprises a low noise amplifier comprising the receiver input.

4. (Currently Amended) The transceiver of claim 1 wherein the [~~connected~~] at least one transmitter output and at least one receiver input comprise a differential line, the transceiver further comprising a matching circuit to interface the differential line to the antenna, the antenna being single-ended.

5. (Original) The transceiver of claim 4 wherein the matching circuit comprises a series capacitor and shunt inductor coupled to one of the differential lines, and a series inductor and shunt capacitor coupled to a second one of the differential lines.

6. (Original) The transceiver of claim 5 wherein the series capacitor, shunt inductor, series inductor and shunt capacitor each comprises a value that in combination substantially match an impedance of the antenna.

7. (Currently Amended) The transceiver of claim 6 wherein the at least one transmitter output is disabled when the at least one receiver input is enabled, and the at least one receiver input is disabled when the at least one transmitter output is enabled.

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8. (Currently Amended) The transceiver of claim 7 wherein the values for the series capacitor, shunt inductor, series inductor and shunt capacitor further compensate for a first capacitance of the at least one receiver input when disabled and a second capacitance of the at least one transmitter output when disabled.

9. (Currently Amended) The transceiver of claim 4 wherein the at least one transmitter output comprises a differential transistor pair each having a drain coupled to a different one of the differential lines.

10. (Currently Amended) The transceiver of claim 9 wherein the at least one receiver input comprises a second differential transistor pair each having a gate coupled to a different one of the differential lines.

11. (Currently Amended) The transceiver of claim 4 wherein the at least one receiver input comprises a differential transistor pair each having a gate coupled to a different one of the differential lines.

12. (Currently Amended) The transceiver of claim 11 wherein the at least one transmitter output comprises a second differential transistor pair each having a drain coupled to a different one of the differential lines.

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13. (Currently Amended) A method of coupling a transceiver to an antenna, the transceiver having a transmitter with a transmitter output and a receiver with a receiver input ~~[connected directly together]~~, the method comprising:

continuously coupling, with a substantially constant impedance, the transmitter output to the receiver input;

disabling the receiver input by powering off at least a portion of the receiver;

transmitting a transmission signal from the transmitter output to the antenna with the receiver disabled;

disabling the transmitter by powering off at least a portion of the transmitter and enabling the receiver by powering on at least a portion of the receiver; and

receiving a receive signal from the antenna at the receiver with the transmitter disabled.

14. (Currently Amended) The method of claim 13 wherein the transmitter ~~[includes]~~ comprises a power amplifier ~~[having]~~ comprising the transmitter output, and the receiver comprises a low noise amplifier comprising the receiver input.

15. (Currently Amended) The method of claim 13 wherein the ~~[connected]~~ transmitter output and receiver input comprise a differential line, the method further comprising matching the differential line to the antenna, the antenna being single-ended.

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16. (Original) The method of claim 15 wherein the matching of the differential line to the antenna when the transmitter is enabled comprises shifting a first signal on one of the differential lines by 90 degrees, shifting a second signal on a second one of the differential lines by 90 degrees in an opposite direction, and combining the shifted first and second signals.

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17. (Original) The method of claim 15 wherein the matching of the differential line to the antenna further comprises compensating for a capacitance resulting from the receiver being disabled.

18. (Original) The transceiver of claim 15 wherein the matching of the differential line to the antenna when the receiver is enabled comprises splitting a signal from the antenna into first and second signals, coupling the first signal to one of the differential lines, coupling the second signal to a second one of the differential lines, shifting the first signal by 90 degrees, and shifting the second signal by 90 degrees in an opposite direction.

19. (Original) The method of claim 15 wherein the matching of the differential line to the antenna further comprises compensating for a capacitance resulting from the transmitter being disabled.

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20. (Currently Amended) A transceiver, comprising:

a transmitter having an output to couple a transmission signal to an antenna;

a receiver having an input responsive to a receive signal from the antenna[, ~~the receiver input being directly connected to the transmitter output, and~~];

a coupling circuit for continuously coupling, with a substantially constant impedance, the transmitter output to the receiver input; and

matching means for matching impedance of the connected transmitter output and receiver input to impedance of the antenna.

21. (Previously Amended) The transceiver of claim 20 wherein the transmitter further comprises means for disabling the transmitter output when the receiver input is responsive to the receive signal from the antenna, and the receiver further comprises means for disabling the receiver input when the transmitter output is coupling the transmission signal to the antenna.

22. (Original) The transceiver of claim 20 wherein the transmitter includes a power amplifier having the transmitter output, and the receiver comprises a low noise amplifier comprising the receiver input.

23. (Original) The transceiver of claim 20 wherein the connected transmitter output and receiver input comprise a

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differential line, and the matching means comprises means for interfacing the differential line to the antenna, the antenna being single-ended.

24. (Original) The transceiver of claim 23 wherein the matching means further comprises a series capacitor and shunt inductor coupled to one of the differential lines, and a series inductor and shunt capacitor coupled to a second one of the differential lines.

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25. (Original) The transceiver of claim 24 wherein the series capacitor, shunt inductor, series inductor and shunt capacitor each comprises a value that in combination substantially match an impedance of the antenna.

26. (Original) The transceiver of claim 25 wherein the transmitter further comprises means for disabling the transmitter output when the receiver input is responsive to the receive signal from the antenna, and the receiver further comprises means for disabling the receiver input when the transmitter output is coupling the transmission signal to the antenna.

27. (Original) The transceiver of claim 26 wherein the values for the series capacitor, shunt inductor, series inductor and shunt capacitor further compensate for a first capacitance of the receiver input when disabled and a second capacitance of the transmitter output when disabled.

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28. (Original) The transceiver of claim 23 wherein the transmitter output comprises a differential transistor pair each having a drain coupled to a different one of the differential lines.

29. (Original) The transceiver of claim 28 wherein the receiver input comprises a second differential transistor pair each having a gate coupled to a different one of the differential lines.

30. (Original) The transceiver of claim 23 wherein the receiver input comprises a differential transistor pair each having a gate coupled to a different one of the differential lines.

31. (Original) The transceiver of claim 30 wherein the transmitter output comprises a second differential transistor pair each having a drain coupled to a different one of the differential lines.

32. (New) The transceiver of claim 1 wherein the at least one coupling circuit presents a substantially constant impedance to the at least one transmitter output or to the at least one receiver input when the transmitter is enabled and the receiver is disabled and when the transmitter is disabled and the receiver is enabled.

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33. (New) The transceiver of claim 1 wherein the coupling circuit comprises at least one capacitor.

34. (New) The method of claim 13 wherein continuously coupling comprises presenting a substantially constant impedance to the transmitter output or to the receiver input when the transmitter is enabled and the receiver is disabled and when the transmitter is disabled and the receiver is enabled.

35. (New) The method of claim 13 wherein the coupling circuit comprises at least one capacitor.

36. (New) The transceiver of claim 20 wherein the coupling circuit presents a substantially constant impedance to the transmitter output or to the receiver input when the transmitter is enabled and the receiver is disabled and when the transmitter is disabled and the receiver is enabled.

37. (New) The transceiver of claim 20 wherein the coupling circuit comprises at least one capacitor.
